REMARKS

1. Amendments

Claim 1 has been amended to include the limitation that the cells are "characterised by the absence of the expression of the marker MyoD". Support for the characterization of the cells based on the absence of this marker is found for example in Table 3, column (1) SM MPC, and also at the beginning of paragraph 138: "*The SM-MPCs are also MyoD negative distinguishing them from fetal MyoD positive cells which can differentiate into skeletal muscle.*"

Throughout the claims, the wording "*any marker*" has been replaced by "*a marker*". Support for this amendment in the context of markers co-expressed with the markers of the invention is found, for example, in the definition in paragraph 55: "*With co-expression, in the context of the present invention, is meant that a second factor or marker is expressed or detectable whenever a first factor or marker is expressed or detectable.*"

Claim 42 has been amended to reflect a particular property of the cells of the present invention, namely that they retain *in vivo* myogenic properties after prolonged passaging. Support for the amendment is found, for example, in paragraph 60, page 6, left column: "*Preferably the MPCs of the present invention have been passaged* ***between 3 and 10 passages****, although MPCs which have been passaged for more than 10, more than 15, or more than 20 passages are within the scope of the invention as long as they* ***have in vivo myogenic properties*** (emphasis added)."

2. Rejections under 35 U.S.C. § 112

Claims 37, 38, and 42 were rejected as indefinite. Applicants submit that this rejection is rendered moot by the present amendment, and should therefore be withdrawn.

Without acquiescence of the Office's rejection, claim 42 has also been amended to reflect a specific embodiment of the invention, and it is believed

that this amendment also renders the rejection moot.

3. Rejections under 35 U.S.C. § 102

The present invention is based on the surprising observation that cells derived from non-muscle tissue, lacking typical muscle cell features, can develop into cells with *in vivo* myogenic properties and can be used to promote muscle repair.

Claim 1 as presently amended more clearly emphasizes this observation, in that the claim now specifies the absence of expression by the cell population of the present invention of a typical marker for muscle cells, MyoD.

De Angelis

The Examiner has asserted that the claims are anticipated by De Angelis under 35 U.S.C. § 102(b). Applicant disagrees.

De Angelis describes a cell population which is derived from embryonic dorsal aorta. De Angelis does not describe muscle progenitor cells derived from joint tissue. That the cells described by De Angelis originating from embryonic dorsal aorta are different from the cells of the present invention, is further emphasized by the difference in expression of the MyoD marker. De Angelis describes that while the aorta itself does not express MyoD (see Figure 1 of De Angelis), the aorta-derived cells do express MyoD (see Table 1 of De Angelis). This is in contrast with the claimed cell population of the present invention, which does not express MyoD.

De Angelis also reports the generation of satellite cell-like clones from cultures of forelimb bud from 20-24 somite embryos, as well as from embryos null for c-Met or expressing a Met receptor unable to transduce the HGF signal (Met^D). Again applicants submit that these cells, which are not obtained from joint cells, are different from the cells of the present invention. Similar to the clones obtained from dorsal aorta, the myogenic clones are indicated by De Angelis to "express high levels of MyoD" (page 872, right column, first paragraph, lines 9-10), which is also illustrated in Figure 7 (E, F, G).

Qu-Petersen

The Examiner has also rejected the claim as anticipated by the publication of Qu-Petersen et al. under 35 U.S.C. § 102(a). Applicants submit that Qu-Petersen does not describe muscle progenitor cells derived from joint tissue. That the population described by Qu-Petersen is different from that of the present invention is again illustrated by the difference in expression of MyoD.

Qu-Petersen et al. describe early preplate (EP) and muscle-derived stem cells (MDSC) which can differentiate into muscle cells. Both of these cell populations are described by Qu-Petersen et al. to express MyoD (page 853, Figure 1, (f), legend: "*RT-PCR for CD34 (e) and MyoD, an early stage marker of myogenesis (f), showed that the two populations (EP cells and MDSC) express both CD34 and MyoD*").

Indeed, the molecular markers of the cell population of the present invention were compared with those of a number of cell populations of the prior art, prior to the filing of the present application, the results of which are provided in Table 3 (page 16, right of published application US 2005/0281778). It is noted that this comparison includes the cell populations described by De Angelis et al. (column 5, "EDA SKP" in Table 3) and by Qu-Petersen et al. (column 3, "MDSC" in Table 3). As can be seen from Table 3, besides their origin, at least one difference between the cell populations of the present invention and those of De Angelis et al. and Qu-Petersen et al. is the absence of the myogenic marker MyoD in the cell populations of the present invention.

Chancellor

The Examiner has indicated that the compositions of the present invention are also anticipated by Chancellor et al. under 35 U.S.C. 102(e). Applicant disagrees.

Chancellor describes muscle-derived cells and muscle-derived stem cells. Thus, again the cell populations are not derived from joint tissue. That this is reflected in a physiological difference between the two cell populations

can again be confirmed based on the expression of MyoD. The cell populations of Chancellor are described to express the myogenic marker MyoD. Indeed, it is stated (column 38, lines 15-22): "*Different populations of muscle derived cells isolated and purified from normal and mdx (dystrophic) mice by the preplate technique were tested for the presence of various markers. It was found that a population of muscle-derived cells had the following characteristics: [....] about 30-60% MyoD expression ..*".

Accordingly, since the non-transfected cells of Chancellor express this marker, it can be assumed that the transfected cells disclosed by Chancellor also express this marker.

In view of the difference in expression of this marker which is characteristic of myogenic cells, it is submitted that the anticipation rejection of the Examiner based on Chancellor et al. is inappropriate.

For all of the aforementioned reasons, each of the § 102 rejections as applied to the amended claims should be withdrawn.

4. Rejections under 35 U.S.C. § 103

Claims 1, 36-42, and 53 were rejected as obvious over De Angelis and Chancellor. Applicant disagrees.

As indicated above, neither De Angelis nor Chancellor describe precursor cells derived from joint tissue of the present invention, more particularly in view of the absence of the MyoD marker. Indication of the absence of a characteristic marker of the cell populations of the prior art provides compelling evidence that the prior art products are not the same as those presently claimed.

Applicant further submits that neither De Angelis nor Chancellor, alone or in combination, teach or suggest a population of cells obtained from joint tissue, or a population of myogenic cells with *in vivo* myogenic potential which does not express the MyoD marker. As this marker is present in all of the prior art documents describing cells with myogenic potential, it is submitted that,

even if the skilled person were to isolate a population of cells from joint tissue to obtain a population of cells with myogenic potential, which is not suggested in any of the prior art documents cited, the skilled person would not consider the population so obtained to be potentially myogenic, in view of the absence of this marker which is generally used to characterize cells with myogenic potential.

Accordingly, the § 103 rejection should be withdrawn.

CONCLUSION

Applicants submit that the claims are in condition for allowance, and such action is requested.

If there are any charges or any credits, please apply them to Deposit Account No. 03-2095.

Respectfully submitted,

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